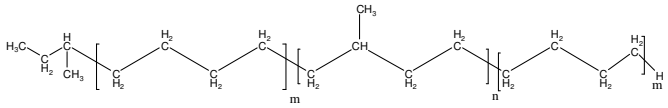
Sample name: **Poly(Ethylene–*b*–Ethylene Propylene–*b*–Ethylene) triblock copolymer**

Other name:
Hydrogenated form of Poly(Butadiene–*b*–Isoprene–*b*–Butadiene), Bd rich in 1,4-microstructure

Sample # **P19485A-EEPrE**

Structure:



Composition:

Mn × 10^3 (by ^{1}H NMR)	Mw/Mn	Degree of hydrogenation
Bd–*b*–Ip–*b*–Bd 27.0–*b*–254.0–*b*–28.0	1.10	–
After hydrogenation: **28.0–*b*–262.0–*b*–29.0**	1.10	> 96%

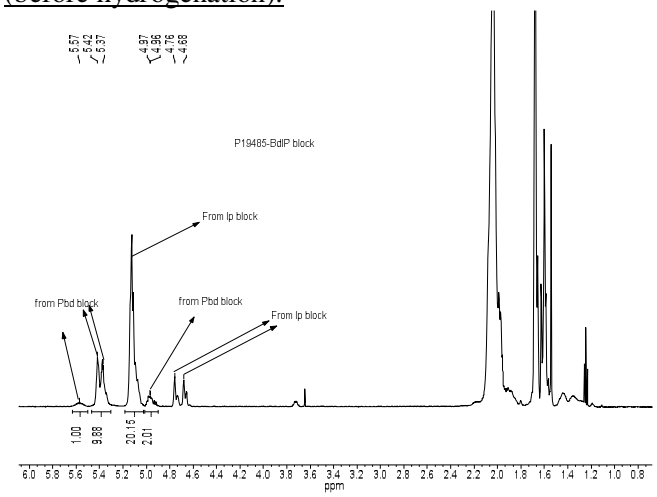
Synthesis procedure:
The polymer was synthesized by anionic polymerization in cyclohexane.

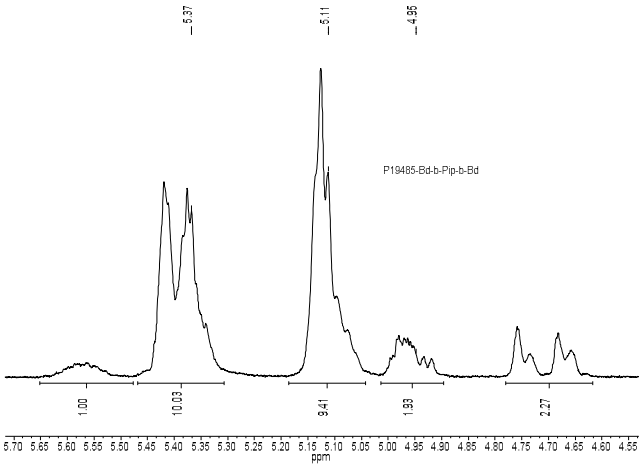
Characterization:
The polymer was characterized by ^{1}H NMR, SEC, FTIR, and DSC.

^{1}H NMR analysis:

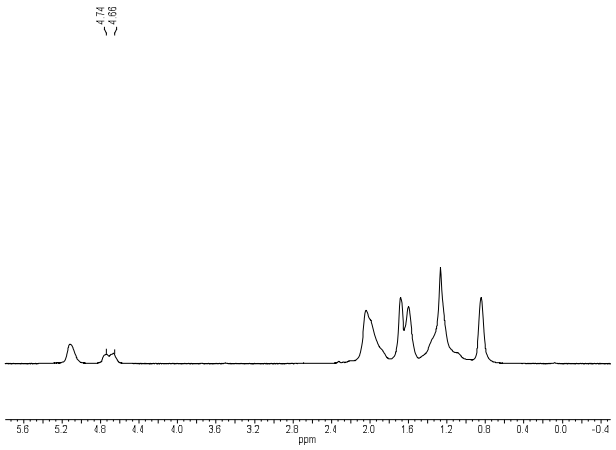
Chemical shifts of Unsaturated blocks:	
Polybutadiene (Bd):	Polyisoprene (Ip):
5.43 ppm 5.38 ppm 4.76 ppm 4.69 ppm	5.13 ppm 4.98 ppm 4.76 ppm 4.69 ppm

^{1}H NMR spectrum of Bd-Ip block copolymer
(before hydrogenation):





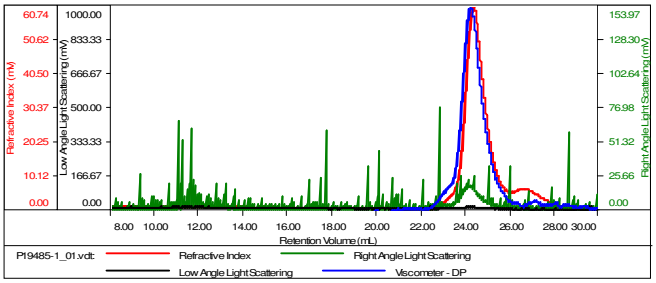
^{1}H NMR spectrum of E-EPr-E triblock copolymer
(hydrogenated form):



SEC of Sample: First block

Sample ID:P19485-Bd

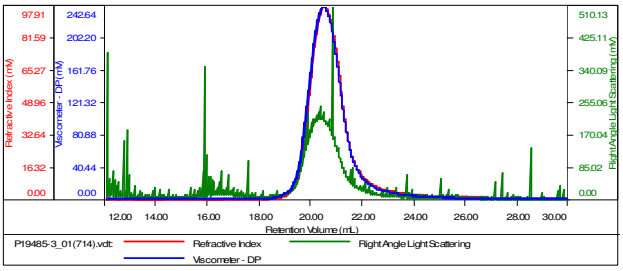
Concentration (mg/mL)	0.5004
Sample dn/dc (mL/g)	0.1250
Method File	PS80K-June30-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19485-1_01.vdt	26,976	31,325	26,885	1.161	2.5826

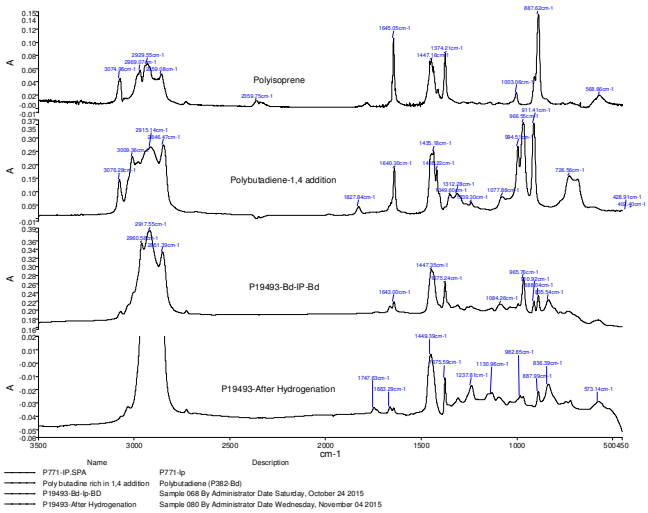
Sample ID-P19485-BdIP-Bd

Concentration (mg/mL)	0.4157
Sample dn/dc (mL/g)	0.1380
Method File	PS80K-Nov-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19485-3_01(714).vdt	309,713	342,988	297,976	1.107	25.1990

FTIR spectra:



DSC thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).